(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
14 December 2000 (14.12.2000)

PCT

(10) International Publication Number
WO 00/74996 A1

(51) International Patent Classification[7]: B62B 3/02

(21) International Application Number: PCT/IB00/00733

(22) International Filing Date: 30 May 2000 (30.05.2000)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
99/3787 4 June 1999 (04.06.1999) ZA

(71) Applicant and
(72) Inventor: MIRRILEES, Roland, Ian [ZA/ZA]; 225 Lys Street, Rietondale, 0084 Pretoria (ZA).

(74) Agent: TAYLOR, Duncan, McKay; Adams & Adams Pretoria Office, 1140 Prospect Street, Hatfield, 0001 Pretoria (ZA).

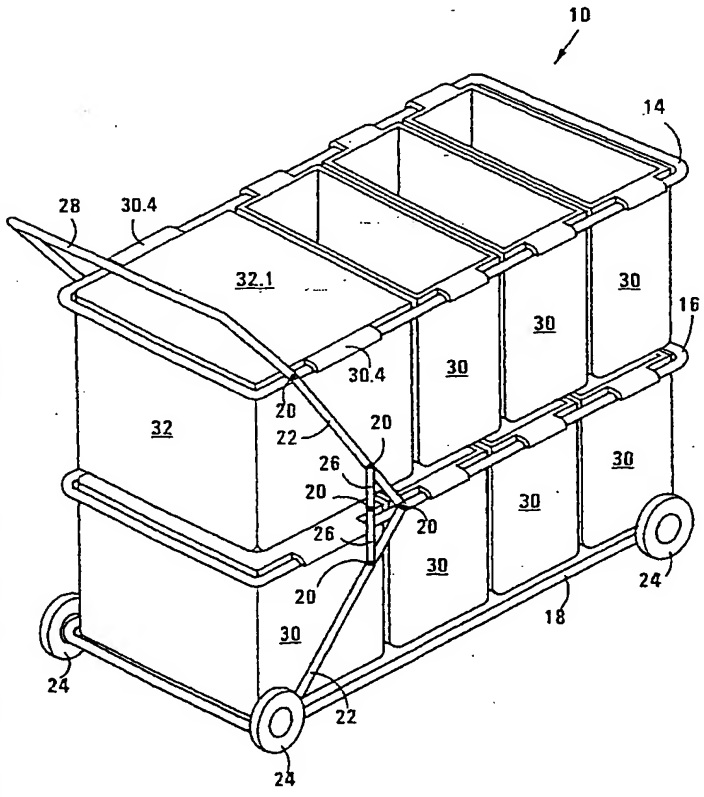
(81) Designated States *(national)*: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW.

(84) Designated States *(regional)*: ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).

**Published:**
— *With international search report.*
— *Before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments.*

*[Continued on next page]*

(54) Title: TROLLEY ASSEMBLY




(57) Abstract: The invention provides a trolley assembly for transporting goods. The assembly includes a foldable frame operable between a folded position and an extended position. The frame has locking means for locking it in the extended position, and a plurality of wheels rotatably mounted thereto to facilitate locomotion thereof. The assembly includes at least one receptacle for receiving and holding goods to be transported. The or each receptacle has support means co-operable with the frame for removably supporting it on the frame.

WO 00/74996 A1

*For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*

# TROLLEY ASSEMBLY

THIS INVENTION relates to trolleys. In particular it relates to a shopping trolley assembly.

According to the invention there is provided a trolley assembly for transporting goods which includes

a foldable frame operable between a folded position and an extended position and having locking means for locking it in its extended position, and a plurality of wheels rotatably mounted thereto to facilitate locomotion thereof; and

at least one receptacle for receiving and holding goods to be transported, the receptacle having support means co-operable with the frame for removably supporting the receptacle on the frame.

Preferably, the frame includes a plurality of pivotally connected frame elements which in the extended position are arranged to form two tiers, the trolley assembly then including a plurality of the receptacles supportable on each tier.

The support means may include a pair of opposed lugs projecting from the or each receptacle, the lugs being shaped and dimensioned to be supported on the frame.

Alternatively, the support means may include suspension elements provided on the or each receptacle, the suspension elements

being co-operable with corresponding formations on the frame to releasably suspend the or each receptacle therefrom. The suspension elements may be flexible, for example, nylon string, and arranged to form loops extending from opposed ends of the or each receptacle, each loop being co-operable with a transverse lug on the frame to releasably suspend the or each receptacle therefrom. In another embodiment, the suspension elements may be in the form of transverse rods secured to the or each receptacle, the ends of the rods being shaped and dimensioned to seat in matching seats in the frame.

The or each receptacle may include a base and a peripheral side wall extending upwardly therefrom.

The base may be made of a semi-rigid material and may be rectangular in shape thereby to support the receptacle in an upright position.

In another embodiment, the base may also be made of the flexible material, the or each receptacle including a rigid flap pivotally displaceable from a position in which it is generally orthogonal to the base to a position in which it lies against the base thereby to give rigidity thereto.

The side wall may be made of a flexible material, for example, a synthetic plastics material such as nylon.

The frame may include a handle to facilitate pushing and pulling of the trolley assembly.

At least one of the receptacles may have a lid and may be made of a thermally insulating material. Typically, goods that require refrigeration such as butter, soft drinks, ice cream, etc. will be stored in this receptacle.

The invention extends to a receptacle for receiving and holding goods to be transported, and adapted to form part of the trolley assembly as hereinbefore described.

The invention further extends to a trolley which includes a foldable frame for supporting at least one receptacle, the frame being operable between a folded position and an extended position and having locking means for locking it in its extended position, and a plurality of wheels rotatably mounted thereto to facilitate locomotion thereof.

At least one of the wheels may be a castor wheel thereby increasing the manoeuvrability of the trolley.

The frame may include a plurality of pivotally connected frame elements which in the extended position are arranged to form two tiers.

The frame may include a handle to facilitate pushing and pulling of the trolley assembly.

The invention will now be described, by way of example, with reference to the accompanying diagrammatic drawings.

In the drawings,

Figure 1 shows a three-dimensional view of a trolley assembly in accordance with the invention;

Figure 2 shows a plan view of the trolley assembly of Figure 1;

Figure 3 shows a side view of the trolley assembly of Figure 1;

Figure 4 shows a side view of the frame of the trolley assembly of Figure 1 in the extended position;

Figure 5 shows the frame of Figure 4 in the folded position;

Figure 6 shows a three-dimensional view of a receptacle of the trolley assembly of Figure 1;

Figure 7 shows a three-dimensional view of another embodiment of a trolley assembly in accordance with the invention;

Figure 7A shows a detailed view of a seat in the frame of the trolley assembly of Figure 7;

Figure 8 shows a plan view of the trolley assembly of Figure 7;

Figure 9 shows a plan view of the trolley assembly of Figure 7 with each of the receptacles removed; and

Figure 10 shows a three-dimensional view of a receptacle of the trolley assembly of Figure 7.

Referring to Figure 1 of the drawings, reference numeral 10 generally indicates a trolley assembly in accordance with the invention.

The trolley assembly 10 includes a foldable frame 12 comprising three generally rectangular frame elements 14, 16 and 18 pivotally connected by pivot pins 20 to cross-members 22. The frame 12 is operable between a folded position, as can best be seen in Figure 5 of the drawings, and an extended position, as can best be seen in Figure 4 of the drawings.

The frame 12 includes four ground-engaging wheels 24 rotatably mounted on the frame element 18 in order to facilitate locomotion thereof.

The frame 12 further includes locking means in the form of locking arms 26 pivotally connected at a first end to the cross members 22 and at an end remote therefrom to each other by means of pivot pins 20. In use, when the frame 12 is in the extended position the arms 26 are in vertical alignment thereby locking the frame 12 in the extended position. In order to collapse the frame 12 to its folded position, a slight transverse force is applied to the pivot pin 20 pivotally connecting the arms 26 together in the direction of arrow 27 in Figure 4 of the drawings. This causes the arms 26 to pivot about the pivot pins 20 thereby allowing the frame 12 to collapse to its folded position.

The frame 12 has a handle 28 in order to facilitate pushing and pulling of the trolley assembly 10.

The trolley assembly 10 further includes a plurality of receptacles 30 for receiving and holding goods to be transported. Each receptacle 30 comprises a generally rectangular base 30.1 and a peripheral side wall 30.2 extending upwardly therefrom and defining a mouth 30.3 at an end remote from the base 30.1, as can best be seen in Figure 6 of the drawings.

Each receptacle 30 includes support means in the form of a pair of opposed lugs 30.4 adjacent the mouth 30.3. The lugs 30.4 are shaped and dimensioned to co-operate with the rectangular frame elements 14 and 16 as can best be seen in Figure 1 of the drawings

thereby to removably support each receptacle 30 thereon. The base 30.1 of each receptacle 30 is made of a semi-rigid plastics material and is able to support the receptacle 30 in an upright position to facilitate loading and unloading thereof. The side wall 30.2 of each receptacle is made up of flexible material eg. nylon thereby allowing each receptacle 30 to be folded into a compact condition when not in use.

The receptacle indicated by reference numeral 32 is similar to each of the receptacles 30 except that it is larger and has walls that are thermally insulated. In addition, the receptacle 30 has a lid 32.1 to close off its mouth.

As can best be seen in Figure 1 of the drawings, when fully assembled, the trolley assembly 10 has two tiers of receptacles 30, 32, each tier being supported on the rectangular frame elements 14 and 16 respectively. In use, the trolley assembly 10 is assembled with only its lower tier of receptacles 30, 32 which are then filled with goods to be transported, for example, shopping items, before the second tier of receptacles 30, 32 is assembled and filled. Shopping items requiring refrigeration for example butter, soft-drinks, ice-cream, etc. are stored in the thermally insulated receptacle 32.

Once the shopping items have been paid for, the trolley assembly 10 is wheeled, for example, to the motor vehicle of the user where the receptacles 30, 32 are placed in the boot of the vehicle in an upright position. The frame 12 is then collapsed to its folded position and stowed in the boot on top of the receptacles 30, 32.

When it is desired to remove the goods, the frame 12 is first locked in its extended position and each receptacle 30, 32 is supported on the frame 12 which is then wheeled, for example, into the home of the user, where the shopping items may be removed and stored.

Referring to Figure 7 of the drawings, reference numeral 100 generally indicates another embodiment of the trolley assembly in accordance with the invention. The trolley assembly 100 is similar to the trolley assembly 10 and accordingly the same reference numerals have been used to indicate the same or similar features. Instead of receptacles 30, the trolley assembly has receptacles 50. Each receptacle 50 comprises a generally rectangular base 50.1 and side walls 50.2 and 50.3 which extend upwardly therefrom, as can best be seen from Figure 10 of the drawings. The base 50.1 and the side walls 50.2, 50.3 are made of a flexible material, eg. nylon, extending upwardly therefrom. The receptacle 50 further includes a rigid flap 50.4 pivotally displaceable from a position in which it is generally orthogonal to the base 50.1 to a position in which it lies against the base. The purpose of the flap 50.4 is to give support to the base 50.1 when goods are placed in the receptacle 50.

Each receptacle 50 includes support means defining suspension elements in the form of two transverse rods 50.5 which are threaded through a seam in the operatively upper ends of the side walls 50.2. In the embodiment 100, each of the frame elements 14, 16 are provided with longitudinally spaced seats 14.1 and 16.1. In use, the ends of the rods 50.5 are seated in the seats 14.1 and 16.1 as can best be seen in Figure 7A of the drawings, thereby to support the receptacles 50.

By way of development, in an embodiment not shown, the underside of the base 50.1 of each receptacle 50 may include strips of "hook-like" fasteners eg. Velcro ™ which stick eg. to the carpet of the car boot.

In the embodiment 100, the frame 12 includes two ground-engaging rear wheels 24 rotatably mounted thereon and two ground-engaging front castor wheels 25. The castor wheels 25 enhance the manoeuvrability of the trolley assembly 100.

Referring to Figure 8 of the drawings, the frame element 18 has a nylon mesh 19 strung across it. In use, receptacles 50 not immediately required for use are stored in a collapsed condition on the mesh 19.

While the receptacles 30, 50 are designed for use with the frame 12, it is to be appreciated that the receptacles 30, 50 may be used on their own in the manner of a conventional shopping bag. Thus, the receptacles 30, 50 may include carrying straps (not shown).

The Applicant believes that it is an advantage of the invention that goods may be transported in a vehicle in receptacles in an upright position which minimises the chances of the goods falling out of the receptacles as in the case of conventional plastic carrier bags currently in use. Moreover, it is an advantage of the invention that it provides a thermally insulated receptacle for goods requiring refrigeration eg. butter, soft-drinks, ice-cream, etc. A further advantage of the invention is that the need for conventional plastic carrier bags is obviated thereby making the invention environmentally friendly. Another

advantage of the invention is that it makes it possible for goods, for example, shopping items, to be conveniently wheeled into the home of a user.

CLAIMS

1. A trolley assembly for transporting goods which includes a foldable frame operable between a folded position and an extended position and having locking means for locking it in its extended position, and a plurality of wheels rotatably mounted thereto to facilitate locomotion thereof; and

at least one receptacle for receiving and holding goods to be transported, the receptacle having support means co-operable with the frame for removably supporting the receptacle on the frame.

2. A trolley assembly as claimed in Claim 1, in which the frame includes a plurality of pivotally connected frame elements which in the extended position are arranged to form two tiers.

3. A trolley assembly as claimed in Claim 2, which includes a plurality of the receptacles supportable on each tier.

4. A trolley assembly as claimed in Claim 1, Claim 2 or Claim 3, in which the support means includes a pair of opposed lugs projecting from the or each receptacle, the lugs being shaped and dimensioned to be supported on the frame.

5. A trolley assembly as claimed in Claim 1, Claim 2, or Claim 3, in which the support means includes suspension elements provided on the or each receptacle, the suspension elements being co-operable with corresponding formations on the frame to releasably suspend the or each receptacle therefrom.

6. A trolley assembly as claimed in Claim 5, in which the suspension elements are flexible and are arranged to form loops extending from opposed ends of the or each receptacle, each loop being co-operable with a transverse lug on the frame to releasably suspend the or each receptacle therefrom.

7. A trolley assembly as claimed in Claim 5, in which the suspension elements include transverse rods secured to the or each receptacle, the ends of the rods being shaped and dimensioned to seat in matching seats on the frame.

8. A trolley assembly as claimed in any one of Claims 1 to 7, inclusive, in which the or each receptacle includes a rectangular base made of a semi-rigid material so that the receptacle is able to stand in an upright position by itself.

9. A trolley assembly as claimed in any one of Claims 1 to 7, inclusive, in which the or each receptacle includes a flexible rectangular base and a rigid flap pivotally displaceable from a position in which it is generally orthogonal to the base to a position in which it lies against the base thereby to give support thereto.

10. A trolley assembly as claimed in Claim 8 or Claim 9 in which the or each receptacle includes a peripheral side wall of a flexible material extending upwardly from the base so that the receptacle can be collapsed to a compact position when not in use.

11. A trolley assembly as claimed in any one of Claims 1 to 10, inclusive, in which at least one of the receptacles has a lid and is made of a thermally insulating material.

12. A receptacle for receiving and holding goods to be transported, and adapted to form part of the trolley assembly as claimed in any one of Claims 1 to 11, inclusive.

13. A trolley which includes a foldable frame for supporting at least one receptacle as claimed in Claim 12, the frame being operable between a folded position and an extended position and having locking means for locking it in its extended position, and a plurality of wheels rotatably mounted thereto to facilitate locomotion thereof.

14. A trolley as claimed in Claim 13, in which the frame includes a plurality of pivotally connected frame elements which in the extended position are arranged to form two tiers.

15. A trolley as claimed in Claim 13 or Claim 14, in which at least one of the wheels is a castor wheel.

16. A trolley assembly as claimed in Claim 1, substantially as herein described and illustrated.

17. A receptacle as claimed in Claim 12, substantially as herein described and illustrated.

18. A trolley as claimed in Claim 13, substantially as herein described and illustrated.

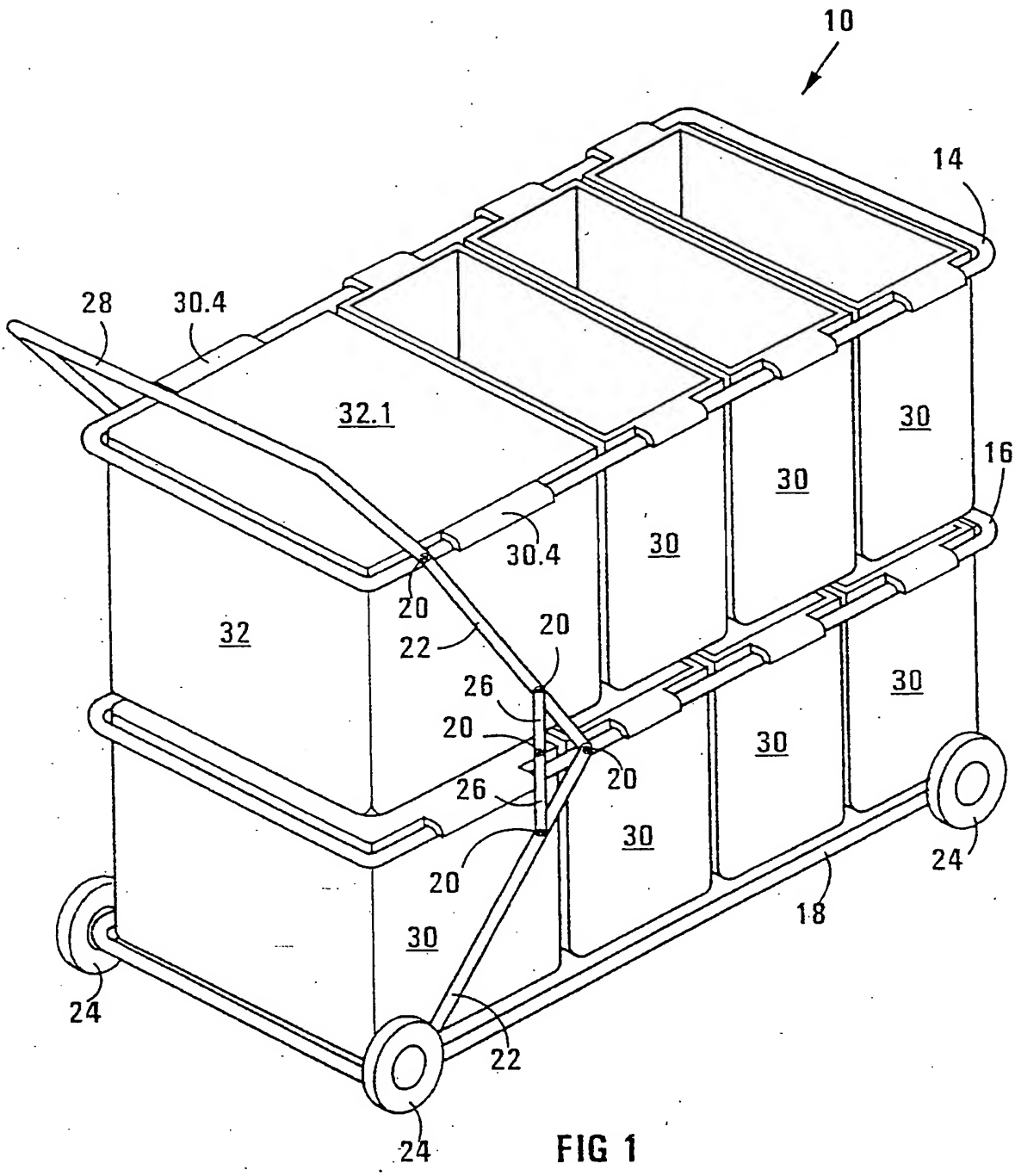

10
14
28
30.4
32.1
30
16
30.4
30
32
20
22
20
26
20
30
20
26
30
20
30
24
18
30
24
22
24

FIG 1

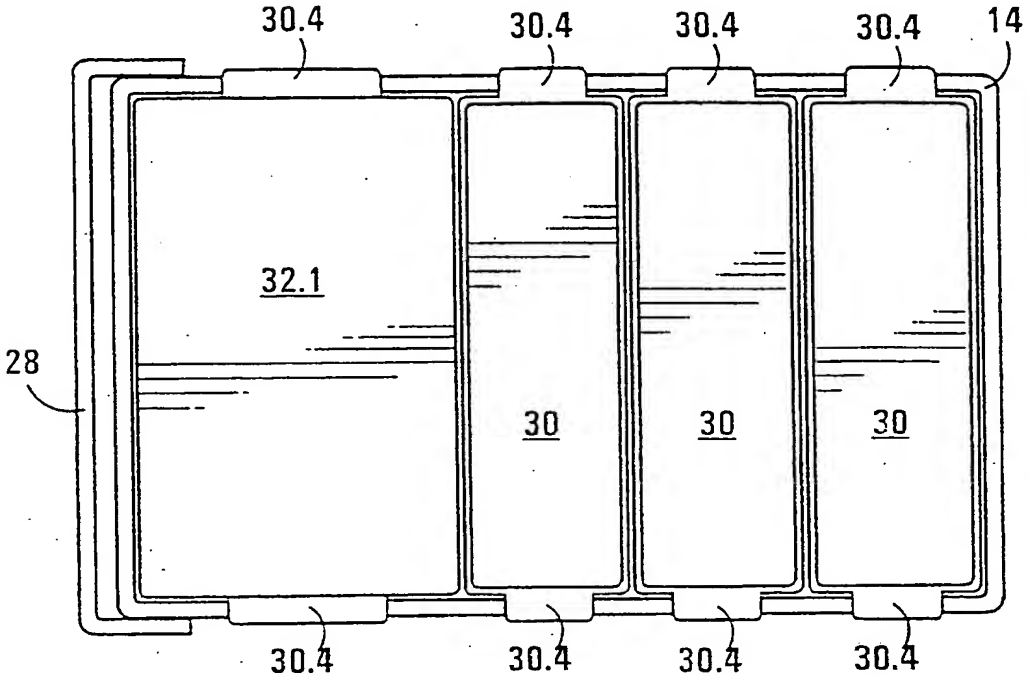

30.4
30.4
30.4
30.4
14
32.1
28
30
30
30
30.4
30.4
30.4
30.4

FIG 2

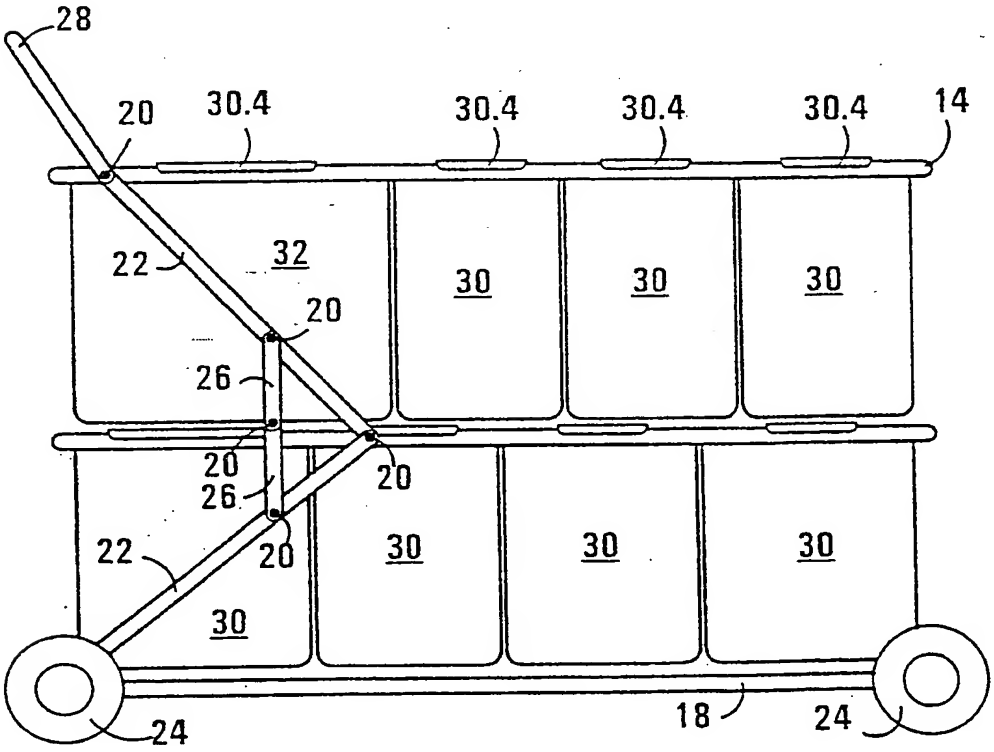

28
20
30.4
30.4
30.4
30.4
14
22
32
30
30
30
20
26
20
20
26
22
20
30
30
30
30
24
18
24

FIG 3

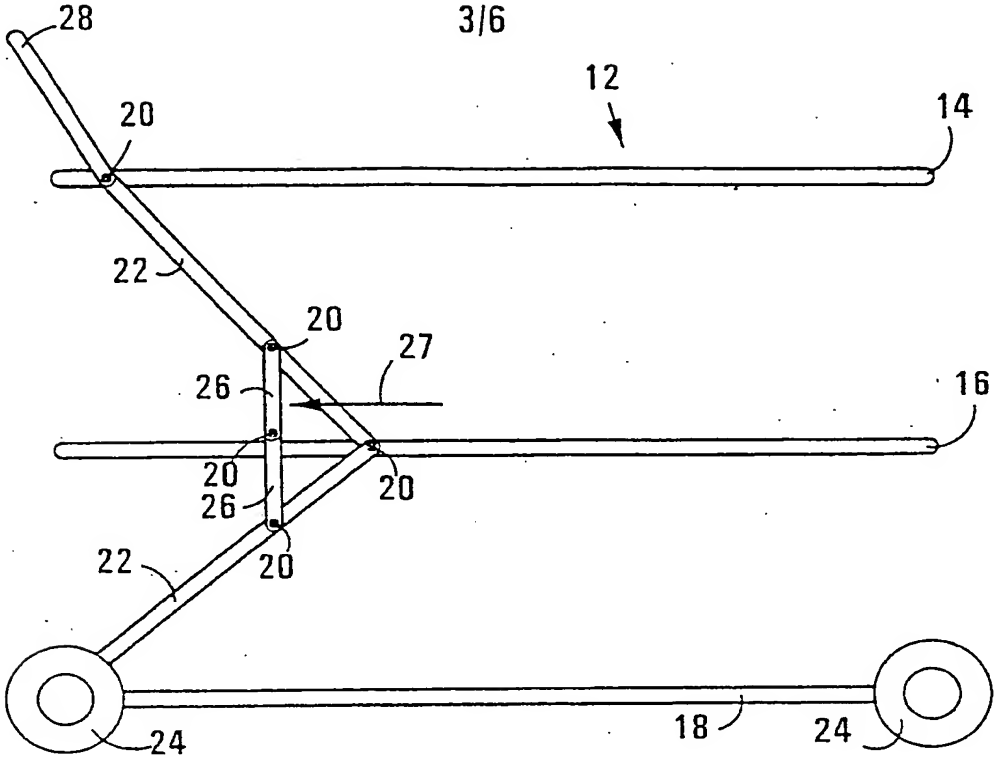

28
20
12
14
22
20
27
26
16
20
20
26
22
20
24
18
24

FIG 4

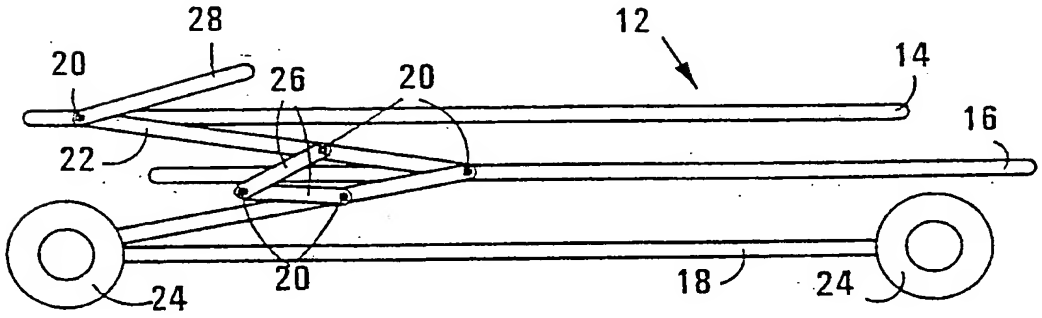

28
20
26
20
12
14
16
22
20
24
18
24

FIG 5

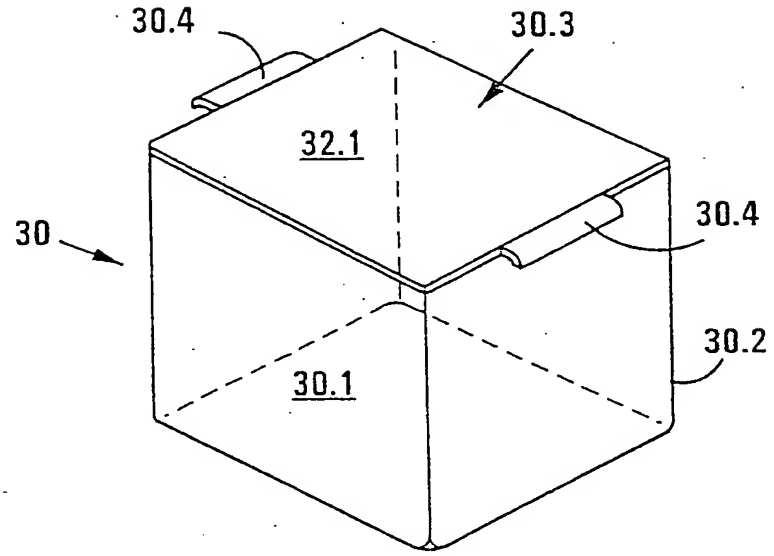

30.4
30.3
32.1
30
30.4
30.2
30.1

FIG 6

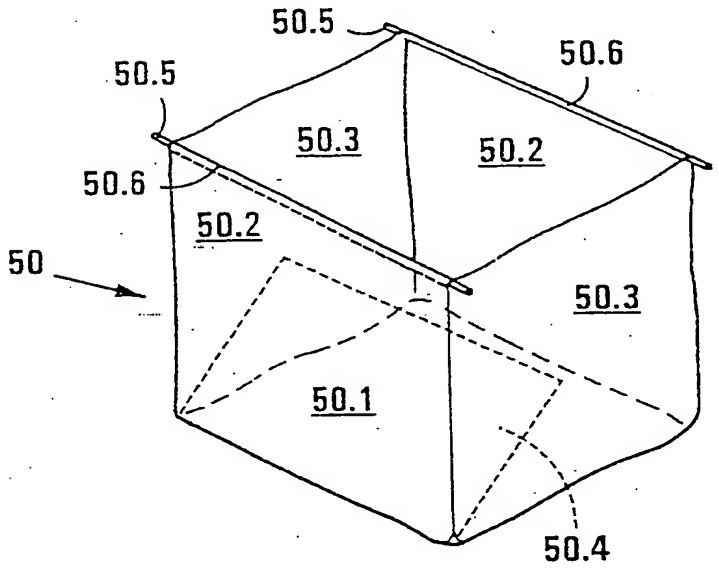

50.5
50.5
50.6
50.3
50.2
50.6
50.2
50
50.3
50.1
50.4

FIG 10

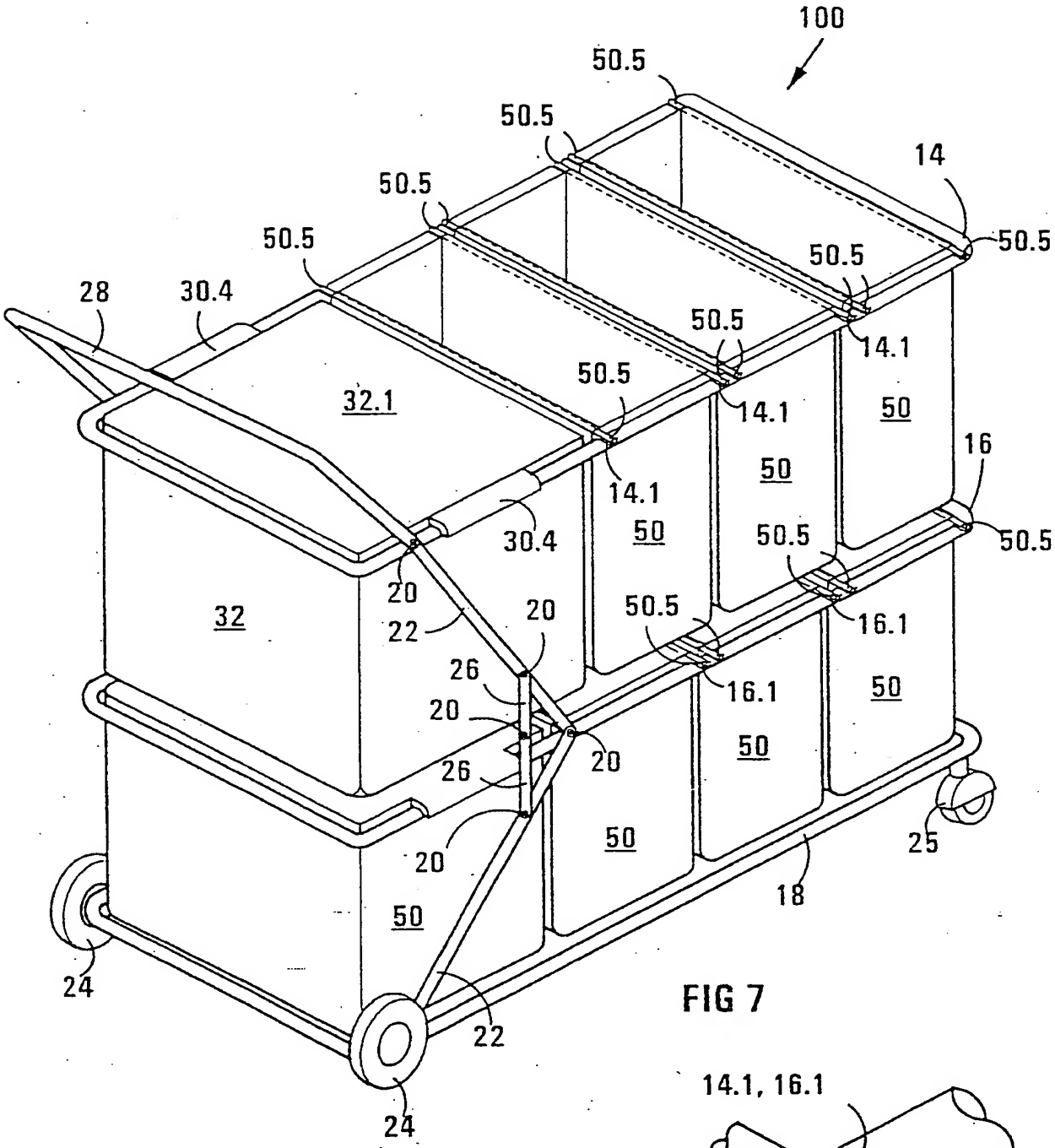

100
50.5
50.5
14
50.5
50.5
50.5
50.5
28
30.4
50.5
14.1
32.1
50.5
14.1
50
16
50
14.1
50
30.4
50.5
50.5
20
22
32
20
50.5
16.1
26
16.1
50
20
50
20
26
50
20
25
18
50
24
22
24

FIG 7

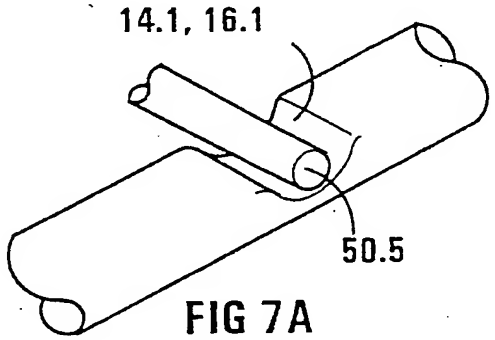

14.1, 16.1
50.5

FIG 7A

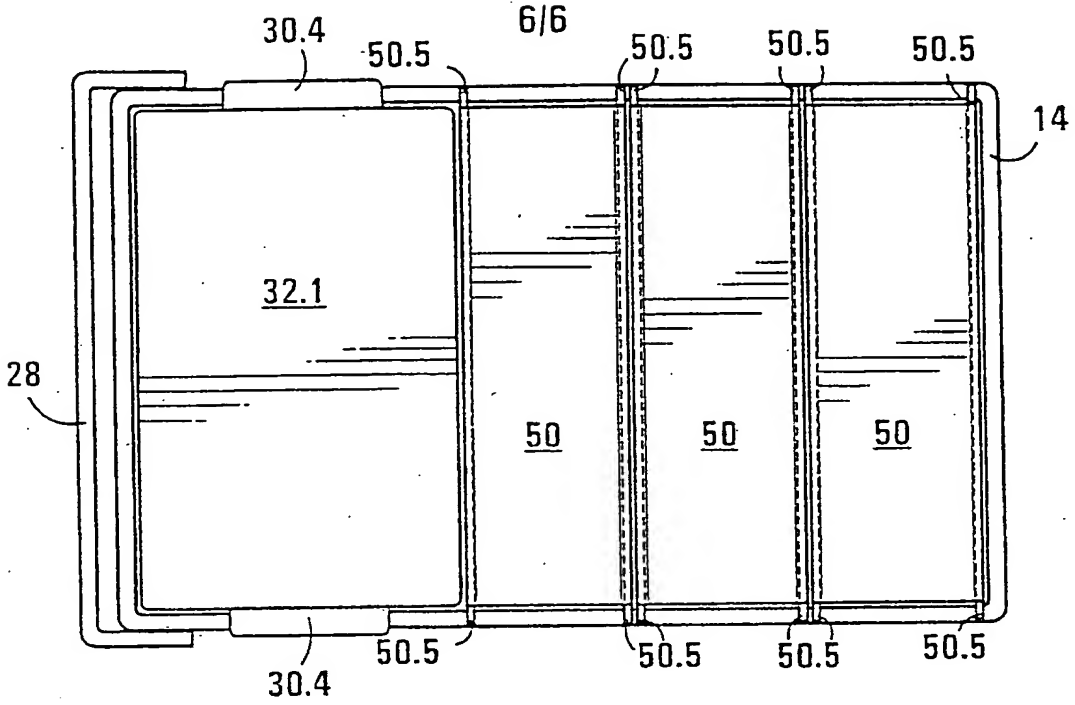



FIG 8

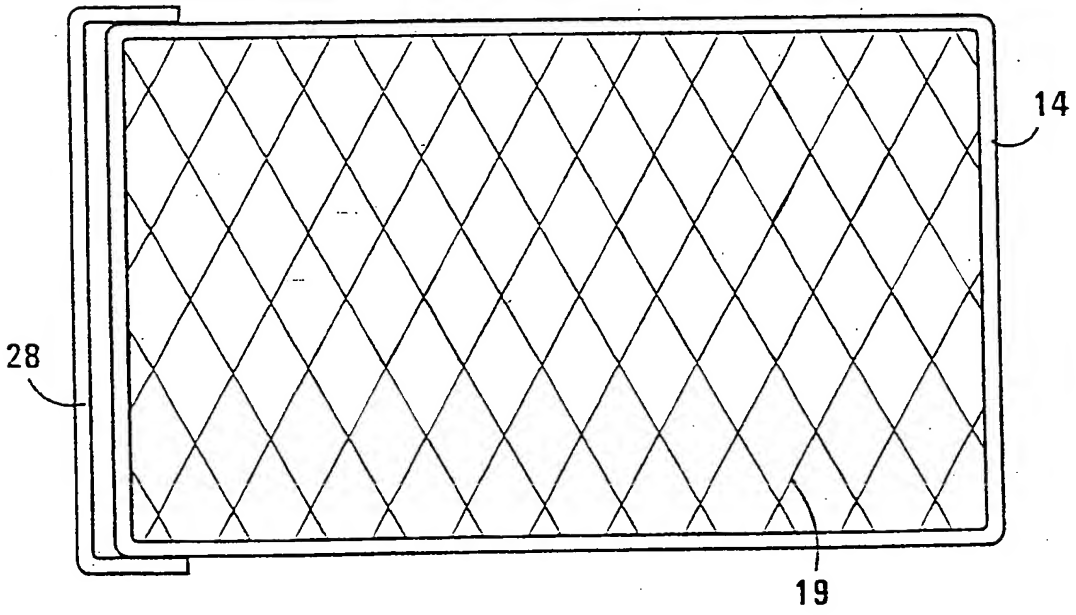



FIG 9

# INTERNATIONAL SEARCH REPORT

Internati[illegible] Application No
PCT/IB 00/00733

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 B62B3/02

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 7 B62B

Documentation searched other than minimum documentation to the extant that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)
EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

| Category * | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
|---|---|---|
| X | FR 2 658 146 A (CROCY JEAN LOUIS)<br>16 August 1991 (1991-08-16)<br>the whole document<br>--- | 1,3-5,7,<br>13 |
| X | US 5 033 758 A (LEVY ISY R)<br>23 July 1991 (1991-07-23)<br>column 6, line 47 -column 7, line 4; claim<br>16; figures 12,13<br>--- | 1-3,<br>13-15 |
| X | DE 295 07 792 U (DETTMER WILTRUT)<br>28 September 1995 (1995-09-28)<br>the whole document<br>--- | 1-3,<br>13-15 |
| X | US 3 168 329 A (GOLDSCHMIDT)<br>2 February 1965 (1965-02-02)<br>figures 1,2,9<br>--- | 1-3 |
| | -/-- | |

[X] Further documents are listed in the continuation of box C.

[X] Patent family members are listed in annex.

* Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

| Date of the actual completion of the international search | Date of mailing of the international search report |
|---|---|
| 10 August 2000 | 27. 10. 00 |

| Name and mailing address of the ISA | Authorized officer |
|---|---|
| European Patent Office, P.B. 5818 Patentlaan 2<br>NL - 2280 HV Rijswijk<br>Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,<br>Fax: (+31-70) 340-3016 | DE SCHEPPER H.P.H. |

1

Form PCT/ISA/210 (second sheet) (July 1992)

# INTERNATIONAL SEARCH REPORT

Internat ıl Application No
PCT/IB 00/00733

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

| Category ° | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
|---|---|---|
| A | EP 0 119 682 A (LUCAS PETER ;STAVELEY JOHN (GB); BELLEHCHILI DJAMEL (FR)) 26 September 1984 (1984-09-26) figures --- | 6 |
| A | FR 2 562 019 A (BOITEAU CHRISTIAN) 4 October 1985 (1985-10-04) --- | |
| A | US 3 118 553 A (ROSENZWEIG) 21 January 1964 (1964-01-21) ----- | |

1

# INTERNATIONAL SEARCH REPORT

International application No.
PCT/IB 00/00733

**Box I Observations where certain claims were found unsearchable (Continuation of Item 1 of first sheet)**

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. ☒ Claims Nos.: 16-18
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
see FURTHER INFORMATION sheet PCT/ISA/210

3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

**Box II Observations where unity of invention is lacking (Continuation of Item 2 of first sheet)**

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.

2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.

3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:

4. ☒ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:
1-7,13-15

**Remark on Protest**

☐ The additional search fees were accompanied by the applicant's protest.

☐ No protest accompanied the payment of additional search fees.

# INTERNATIONAL SEARCH REPORT

International Application No. PCT/IB 00/00733

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

Continuation of Box I.2

Claims Nos.: 16-18

See Rule 6.2(a) PCT.

The applicant's attention is drawn to the fact that claims, or parts of claims, relating to inventions in respect of which no international search report has been established need not be the subject of an international preliminary examination (Rule 66.1(e) PCT). The applicant is advised that the EPO policy when acting as an International Preliminary Examining Authority is normally not to carry out a preliminary examination on matter which has not been searched. This is the case irrespective of whether or not the claims are amended following receipt of the search report or during any Chapter II procedure.

# INTERNATIONAL SEARCH REPORT

International Application No. PCT/IB 00/00733

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. Claims: 1-7 13-15

   Foldable trolley adapted for removably supporting receptacles

   1.1. Claims: 1-3 13-15
   foldable trolley

   1.2. Claims: 4-7
   suspension of the receptacles

2. Claim : 8 9 10 11 12

   different shapes of receptacles

Please note that all inventions mentioned under item 1, although not necessarily linked by a common inventive concept, could be searched without effort justifying an additional fee.

# INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No
PCT/IB 00/00733

| Patent document cited in search report | Publication date | Patent family member(s) | Publication date |
|---|---|---|---|
| FR 2658146 A | 16-08-1991 | NONE | |
| US 5033758 A | 23-07-1991 | NONE | |
| DE 29507792 U | 28-09-1995 | NONE | |
| US 3168329 A | 02-02-1965 | NONE | |
| EP 0119682 A | 26-09-1984 | FR 2539288 A | 20-07-1984 |
| FR 2562019 A | 04-10-1985 | NONE | |
| US 3118553 A | 21-01-1964 | NONE | |